NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

A FULL OVERHEAD COST MODEL FOR THE
U.S. COAST GUARD YARD,
CURTIS BAY, MARYLAND

by

Michael F. Breen

June 1982

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REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER	2. GOVT ACCESSION NO. / 3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle): A Full Overhead Cost Model for the U.S. Coast Guard Yard, Curtis Bay, Maryland	5. TYPE OF REPORT & PERIOD COVERED: Master's thesis; June 1982
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): Michael F. Breen	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Naval Postgraduate School, Monterey, California 93940	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS: Naval Postgraduate School, Monterey, California 93940	12. REPORT DATE: June 1982
	13. NUMBER OF PAGES: 103
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)	15. SECURITY CLASS. (of this report): Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Coast Guard Yard	Depreciation	Real Property
Overhead Cost Model	Allocation	Fixed Assets
U.S. Coast Guard Yard	Industrial Fund	Cost Centers
Yard Fund	Historical Cost	
Overhead	Current Cost	

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

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This report concludes the information based on historical cost is irrelevant due to inflation. A recommendation is made to use current cost, which would produce more useful information to determine the current operating costs of the Coast Guard Yard.

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL

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I. INTRODUCTION

This thesis will examine the effect of adding real property depreciation to the Coast Guard Yard's industrial overhead costs. The Yard is financed by the Coast Guard Yard Fund, which is a revolving industrial fund. Under the Yard Fund direct materials, direct labor, and overhead costs are recovered by charging the Yard's customers. Acquisition of real property and its subsequent improvements are financed by separate appropriations. The economic consumption (depreciation) of real property is not recoverable from customers, but it is still recorded on the Yard's annual balance sheet for statistical purposes.

The primary issue of this thesis is how much the Yard's overhead costs will increase if real property depreciation is included as an annual operating expense. There are also two secondary issues. First, which of two alternative overhead allocation models should be used for computing overhead? Second, should the present $200 asset capitalization threshold be increased to $1,000? The impacts on overhead costs from both secondary issues will be examined.

The depreciation of each real property asset was computed. Depreciation costs were collected in appropriate cost centers. The cost centers' costs were then allocated to the industrial overhead pool by using both of the alternative allocation methods. Finally, four additional overhead costs were determined,

two for each allocation method, with each allocation method having one rate without and one rate with the write-off expense which would result from the implementation of the $1,000 capitalization threshold.

The study concludes that the effect from adding real property depreciation is a material increase in the Yard's operating costs. However, the relevancy of this information is questionable, since it is based upon historical costs rather than current costs. A recommendation is made that the purpose for which this information will be used be determined--whether it will be to track historical costs or to determine the actual current cost of the Yard.

II. PROBLEM STATEMENT

The intent of this thesis is to incorporate the annual depreciation of major assets, which has previously been included for statistical use only, into the Coast Guard Yard's overhead cost pool. The resulting increase in the Yard's overhead costs will be determined and the potential effect on customer charges will be examined.

Presently, paragraph 1H01002B4 of the Coast Guard Comptroller Manual prohibits charging depreciation of real property to the Yard's job orders [Ref. 1]. Therefore, the Yard's customers are receiving the benefit of machine shops, drydocks and their assorted support facilities, utility systems and other fixed assets without having to pay for them. These are free goods which have been provided by the government to the Yard's customers. In effect the customers are receiving the benefit of a subsidy which reduces the cost of their Yard work. Other Yard assets (i.e., machinery and vehicles), are presently being depreciated and charged to overhead as their benefits are consumed.

This thesis will quantify the effect of adding depreciation of real property capital assets to the Yard overhead cost pool. The subsequent change in the overhead allocation rate will be presented. This new rate will be based, as is the present policy, on direct labor costs. In addition, a determination will be made as to changes required in drydock rates.

A. WHY INCLUDE REAL PROPERTY DEPRECIATION IN CUSTOMER CHARGES?

Depreciation is defined as "a systematic and rational method of allocating costs to periods in which benefits are received" [Ref. 2] or "the expiration of the acquisition costs (or other basis) of an asset" [Ref. 3]. Therefore, in depreciating real property (except land, which, by general convention, does not depreciate), periodic costs of consuming assets are expensed in the period in which consumption occurs. Then these costs are passed along to customers who actually received the benefits, albeit indirectly, of the depreciated assets.

Since the philosophy of an Industrial Fund is to account for the activity's resources as a commercial company would do, the depreciation of fixed assets in an industrial fund should be included as a cost of operating the activity, just as in a commercial enterprise. This allows for a more realistic cost comparison between the Coast Guard Yard and commercial shipyards that may be considered as alternatives to the Coast Guard Yard for a given project.

By including fixed asset depreciation in the various overhead cost centers, the cost center managers have a more realistic idea of how much it actually costs to operate their cost centers, even though they do not have direct control over depreciation expense. However, for future planning, the cost center manager would be able to make a more informed recommendation on any acquisitions and/or improvements contemplated, since he would know that the associated depreciation would

become part of his cost center's fixed costs. In this way, he would become more cognizant of his fixed assets and would be able to make better decisions on maintenance-versus-improvement and improvement-versus-replacement problems.

The increased cost of Yard projects (from inclusion of fixed asset depreciation) would not be charged to customers, since this is prohibited by regulation [Ref. 1]. However, if the additional cost could be recovered, Yard customers would have to become more selective in choosing projects to ensure the greatest possible efficiency and effectiveness of their limited dollars.

B. WHY NOT PREVIOUSLY INCLUDED?

The government does not want to pay twice for the same asset first through an appropriation to purchase the new asset or improvement and then through an appropriation to finance the customer being charged for the depreciation of the new asset.

Congress wants to control major government acquisitions. This control is achieved by financing major acquisitions through appropriations, which are subject to Congressional review and approval. In the case of the Coast Guard, these are the Operating Expense (OE) and Acquisition, Construction, and Improvement (AC&I) appropriations. This control makes the various government agencies justify their requests to the Congress. It also permits Congress to approve or disapprove projects based upon their political expediency.

It is highly unlikely that Congress will give up this control. If it did, the services would then be able to approve their own projects for Industrial Fund activities. If this was to be the case, then charging depreciation for major assets acquired under this type of financing would be appropriate.

An alternative to the above might be to continue to finance major assets by appropriation but to consider this funding as an increase to the Industrial Fund's corpus. (This would be similar to equity financing in the commercial world.) The activity would then be responsible for capital maintenance and, thus, for recovery of the cost of the assets through charges for depreciation. This method would preserve Congressional control and still make the activity accountable for capital maintenance.

III. BACKGROUND

A. DESCRIPTION OF THE YARD

The Coast Guard Yard is located approximately six miles southwest of the City of Baltimore, Maryland. Originally founded in 1899 as the Revenue Cutter Service Depot, the Yard has performed ship construction and repair functions ever since. It is the only shipyard facility owned and operated by the Coast Guard. Located on a 113 acre site adjacent to Curtis Creek and Arundel Cove, the Yard incorporates 1730 feet of pier space on three piers with dock side cranes for ship repair work. In addition, there are two floating drydocks, one 200 feet and one 350 feet long; two construction shipways, each 350 feet long; and one 100-foot long marine railway. The Yard has a 650-foot long small boat construction (fabricating) shop plus machine, electrical, electronic, woodworking, ordnance and other industrial shops. The Yard is manned with a work force of approximately 1,000 people.

Fiscal year 1982's budgeted industrial sales are $28,300,000, with 14 major cutters (180 feet and longer) scheduled for dry-dock availability.

B. FUNCTIONS OF THE YARD

There are six functions of the Yard:

		% of Budgeted Cost
(1)	Ship construction (65 feet and over)	1.6
(2)	Ship repairs and alterations	66.2

(3)	Small boat construction and repairs	14.1
(4)	Buoy and buoy part construction	3.4
(5)	Fabrication of special items and miscellaneous services	11.4
(6)	Major maintenance for the Yard and tenant activities	3.3

C. NONINDUSTRIAL COSTS

Although they are part of the Yard's operations, there are certain costs that have been delineated as nonindustrial by the Yard's Budget and Accounting Manual. They include costs incurred by Ship Inventory Control Point (SICP), the Commanding Officer's office and quarters, railroad trackage, EEO activity, union activity, Public Works Department professional and technical staff, apprentice program (classroom time for both instructors and apprentices) and the Quality Assurance Staff. The SICP is the largest sharer of Yard building and facilities. Its administrative office is co-located in building no. 31 along with the Yard Comptroller Division and the Data Processing Center. Also, the SICP uses 25% of the various storage facilities at the Yard, since it is a ship's parts inventory stock point. These nonindustrial costs are covered by Operating Guides from the Operating Expense Appropriation, which will be discussed below.

In addition to the industrial shipyard, there are several tenant commands which are also considered nonindustrial portions of the Yard. These include Coast Guard Group Baltimore, Coast Guard Station Curtis Bay, and two tugs and a small buoy

tender, which are separate commands homeported at the Yard. These other commands are contained within their own separately identifiable buildings and facilities and share only in such common elements as utilities and roadways. Finally, the Yard Comptroller staff handles financial matters for the entire Yard via the Industrial Fund. The nonindustrial sections of the Yard then have their shares of expenses allocated to them. These expenses include maintenance contracts for grounds and buildings, service contracts (e.g., trash removal) and utility costs.

C. FUNDING OF THE YARD

1. Industrial Fund

The Coast Guard Yard Fund Appropriation 69X4743 was established under Title 14 USC, Section 648 and Treasury Department Order No. 167-3 dated 6 May 1953 [Ref. 1]. It is a self-contained revolving fund used to account for all industrial work performed at the Coast Guard Yard. The costs of salaries, materials, and maintenance items incurred in Industrial projects are charged to the customers. Replacement of buildings and structures is excluded from the Yard Fund, since it requires specific legislative approval and funding. Also, certain repairs, additions, improvements and replacements of assets are funded separately by annual and multi-year appropriations, which will be discussed below.

2. Acquisition, Construction and Improvement Appropriation (AC&I)

AC&I funds are provided for major real property improvements, additions and replacements which are estimated to cost

in excess of $50,000 and for the acquisition of land. It is a multi-year appropriation. Again, as stated in Chapter II, the depreciation of these assets cannot now be charged back to Yard customers [Ref. 1].

3. Operating Expenses Appropriation (OE)

The main appropriation which funds the Coast Guard is Operating Expenses, which is an annual appropriation. OE is broken down into fourteen Operating Guides (OG) which cover such expenses as Military Pay, Civilian Pay, Operations & Maintenance, and Personnel Training and Procurement. The Yard receives funding for nonindustrial operations from the Operating Guides described below.

OG-01, Military Pay and Allowances, funds the military payroll for all officers and enlisted personnel stationed at the Yard. This does not include officers assigned to industrial billets, since their payroll is funded from the Yard Fund.

OG-08, Civilian Salaried Personnel, funds the payroll for General Schedule (GS) employees not provided for by the Yard Fund. These employees would include those working in administration, the SICP, Public Works Professional and Technical Staff and the Quality Assurance Staff.

OG-20, Permanent Change of Station Program, funds Permanent Change of Station (PCS) orders for all military personnel attached to the Yard.

OG-30, Operating and Maintenance Costs, funds non-production areas of the Yard, including the Commanding Officer's office and quarters, Bachelor Officer and Enlisted Quarters (BOQ and BEQ), the SICP (not including payrolls), union activity, Public Works operations and materials, and security.

OG-43, Shore Unit Program, is applied to industrial assets to finance replacement of structures or parts of structures, utility lines and industrial facilities. These replacements, which will extend the sueful life of the asset, are estimated to cost less than $50,000. Also real property improvements and additions for general purposes, estimated to cost between $1,000 and $50,000 per project, are included under OG-43. OG-43 does not finance the acquisition of land, however.

OG-45, Vessel Program, funds inspection, repair, replacement and procurement of vessel parts and equipment that are stocked by the SICP. These materials are controlled by Coast Guard Headquarters and are either issued free or sold to requesting units.

OG-46, Ocean Engineering Program, funds the production and transportation of navigational buoys and related equipment.

OG-56, Civilian Training Program, funds training programs for the Yard's civilian employees. These programs include safety training, the apprenticeship program and the upgrading of skills.

OG-57, Medical Supplies and Equipment, funds procurement of materials and equipment for the Yard's dispensary.

4. Costs Recoverable from Customers

The U.S. Coast Guard Yard Budgeting and Accounting Manual states that job order costs are composed of direct materials, direct labor and applied overhead, which are charged to customers. Direct labor includes salary plus accelerations for all leaves and the government's contributions to retirement, social security (FICA), life insurance (FEGLIA), and health insurance (FEHBA).

Overhead is charged to customers as a percentage of direct labor costs. This percentage is presently limited to 75% by Coast Guard Headquarters. Overhead cost consists of productive shop costs, operations and maintenance costs, and general management and administrative expenses. These overhead costs fall into the following six categories:

1. Wageboard Supervisory and other indirect accelerated labor costs (e.g., assistance shop planner).
2. Civil Service personnel costs including fringe benefits.

3. Pay and allowances of military personnel assigned to industrial billets.

4. Wageboard employees, normally charged to production, when they are assigned to nonproduction status (e.g., training, union activity or housekeeping).

5. Materials and contractual services procured for general shop, office or Yard use, including routine maintenance of buildings, plant equipment, utility lines and industrial facilities.

6. Allowance for depreciation or obsolescence of machinery and equipment, but not for real property.

These costs are accumulated by the various cost centers (see Appendix A for a listing of cost centers). The total overhead cost to be recovered for the Yard is the sum of each cost center's budgeted overhead. This sum of all the cost centers' budgeted overhead is divided by the budgeted total direct labor cost for the Yard (which includes industrial regular and overtime hours plus engineering regular hours) to obtain the Yard's average overhead percentage rate. Finally, the actual overhead hourly rates are computed for each category of labor hours (see Chapter VI).

IV. ACCOUNTING CONSIDERATIONS

There are three basic accounting elements to be considered when an asset is depreciated, the asset's value, the asset's useful life and the method of depreciating the asset.

A. ASSET VALUATION

Asset valuation is based on either input or output values. Input value is the cost to acquire an asset and place it into production. Output value is the anticipated future value of an asset to be received when it is sold or the future cash flows to be dervied from it.

Since output value is primarily concerned with the future sale of an asset, it will not be discussed in this thesis. The assets that are of concern are of a fixed nature and are not purchased with the intent to be sold but, rather, to be used in operations. In addition, Hendriksen states that it is the conventional practice to record nonmonetary assets at their input values. Nonmonetary assets are any assets which do not represent money or a claim to receive a fixed amount of money (e.g., cash, notes, bonds). They include land, buildings, equipment and inventory [Ref. 4]. Three measures of input valuation will be discussed below--historical cost, current replacement cost, and historical cost/constant dollars [Ref. 5].

1. Historical Cost

The traditional and still the only valuation method acceptable under generally accepted accounting principles (GAAP) is valuation at historical cost. Historical cost's chief advantage is its objectivity, assets are valued at their actual purchase or acquisition costs. These costs are easily verified by examining purchase invoices for the assets along with records of associated installation and transportation costs.

Disadvantages arise when assets are purchased at various dates over a long period of time. The costs associated with older assets may not be comparable with newer ones because of inflation (i.e., 1940 dollars do not represent the same purchasing power as 1982 dollars). This factor makes the summing of asset values unrealistic. A second disadvantage is that an asset's value to the firm (or Yard) may have changed because of obsolescence, increasing energy costs, or other factors. Such changes in an asset's value subsequent to purchase are ignored by historical cost.

2. Current Cost

The Financial Accounting Standards Board (FASB) defined the current cost of property, plant and equipment in Statement 33 as, "the current cost of acquiring the same service potential (indicated by operating costs and physical output capacity) as emobided by the asset owned" [Ref. 6].

The statement lists four methods companies may use to measure the current cost as a used asset.

1. Use the current cost of a new asset that has the same service potential the asset owned had when it was new; then adjust for depreciation based on the age of the asset owned.
2. Use the current cost of a used asset that is of the same age and in the same condition as the asset owned.
3. Use the current cost of a new asset with a different service potential than the asset owned; then adjust for differences in service potential.
4. Several alternative sources of price information may be used to determine current cost. These are externally and internally generated price indices for the class of goods being measured; current service prices; vendor's price lists, prices or quotations; and standard manufacturing costs that reflect current costs [Ref. 6].

The principal advantage of current cost is that it represents how such a firm would have to pay today for the same asset. This makes it the best measure of input costs to be matched against current revenue. Another advantage is that the "summation of assets expressed in current terms in more meaningful than the addition of historical costs incurred at different times" [Ref. 7]. The method for calculating depreciation would remain the same as under historical cost. The current cost would be used for the asset value instead of the acquisition cost.

3. Historical Costs/Constant Dollars

The FASB's definition of constant dollar accounting is "a method of reporting financial statement elements in dollars each of which has the same (i.e., constant) general purchasing power" [Reg. 6]. The board has stated that the Consumer Price Index (CPI) for all Urban Consumers will be used for computing constant dollars by the following formula:

$$\frac{\text{historical costs x CPI for present year}}{\text{CPI for year asset acquired}}$$

The CPI for urban consumers is a general price index. This means it is an index which reflects the tendency of prices to rise, fall or remain constant for all goods and services in the urban sector of the economy.

The advantage of this method is that the purchase prices of assets acquired at different times can be adjusted so their costs are comparable. That is different assets' values are restated in dollars having the same purchasing power. Also the objectivity of historical cost is maintained, since the assets' historical costs are being adjusted by an independently determined index.

The disadvantage of this method lies in the use of an index to adjust historical cost. The CPI for urban consumers covers a broad range of goods and services and therefore, may not change by the same amount or in the same direction as a specific asset's value [Ref. 5].

4. Conclusion

For the purposes of this thesis, historical cost will be utilized for asset valuation, primarily for its objectivity and the ease of obtaining the data. Since it is also the present method of valuation employed at the Coast Guard Yard, the use of historical cost here allows for the findings to be readily comparable to the current Yard overhead costing data.

B. USEFUL LIFE DETERMINATION

Once the asset's value has been determined, it is then necessary to ascertain how long the asset will remain economically productive. This task is difficult enough when only the physical life needs to be determined. It is further complicated by the factor of technological obsolescence. Two methods will be discussed below--the use of IRS Tables and of managers' evaluations.

1. Internal Revenue Service Tables

The Internal Revenue Service has published Asset Depreciation Range (ADR) Tables, which provide guidelines for suggested asset lives to be used for tax reporting [Ref. 8]. These guidelines are divided into two groups, "Assets Used by Business in General" and "Assets Used in Specific Industries". The Coast Guard Yard employs the ADR schedule for setting the lives of some assets, usually by taking the longest suggested life.

2. Managers' Evaluations

This second method utilizes the operating managers to set the asset life. The managers may rely on their past experience with identical or similar assets for asset life determination. Although this method is somewhat subjective, it can be tempered by managers using historical data, statistical data, and industry studies for setting asset lives. This judgmental approach is the other life determining method used by the Yard.

3. Conclusion

Both of the above mentioned methods are presently employed by the Yard for new asset life determination. It is not within the scope of this thesis to check the validity of the life determinations of older assets. Therefore, the actual asset lives used by the Yard, since they appear to have been set in accordance with the above procedures, will be accepted as being reasonably accurate.

C. METHODS OF DEPRECIATION

Depreciation is the systematic transfer of the cost of an asset to expense to reflect the consumption of the asset's service potential. There are three generally accepted methods for depreciation, straight-line, accelerated, and variable charge. A fourth, the compound interest method, which is a decelerated depreciation method, is not used extensively and will not be covered in this thesis.

1. Straight-line Depreciation

The straight-line method depreciates the asset evenly over a period of time. The theory behind the straight-line method is that the consumption of the asset is more closely related to the passage of time than any other criterion and that operating efficiency is relatively constant over the life of the asset, as are the repair and maintenance costs. Straight-line is also very appealing for its simplicity (dividing asset cost less salvage value by its useful economic life). This method is the prescribed means of depreciating all assets at the Yard. Additionally, a survey of eight commercial shipyards around the country resulted in seven out of the eight Yards reporting the use of the straight-line method for financial reporting purposes.

2. Accelerated Depreciation

There are two different methods that fall under accelerated depreciation--sum-of-the-year's-digits and declining balance. Under the accelerated methods, the assumption is made that the asset's operating efficiency deteriorates over time and/or that repair and maintenance costs increase over time. The main appeal of these methods is for tax reporting purposes. They allow for a larger portion of the asset's cost to be expensed during the early years of its economic life. Thus, with higher expenses than with a straight-line method, the company's taxable income and resulting tax are lower. Presumably, the asset is disposed of when it has lost its economic and tax deferring usefulness. The Cost Accounting Standards Board

(CASB) has allowed Defense contractors to use accelerated depreciation methods for their tangible assets. Cost Accountint Standard (CAS) 409, permits accelerated depreciation, but the contractor must be able to prove the accelerated method chosen accurately reflects the economic consumption of the asset. Since accelerated depreciation allows the contractor to recover most of the asset's cost from the Government in the early years of the asset's life, more money is available for asset replacement or capacity expansion.

3. Variable Charge Methods

Variable charge methods are used when the consumption of an asset if closely related to its use (e.g., machine hours or units of output). Depreciation in these methods is variable with production. The principal criterion for consumption of service potential is the actual physical use of the asset.

4. Conclusion

For purposes of this thesis, the straight-line method of depreciation will be used. This choice is due to its simplicity and the fact that straight-line is presently used by the Yard. While an accelerated method might more realistically represent the deterioration of some of the assets over time, it is beyond the scope of this thesis to determine, as objectively as possible, a suitable rate to reflect each asset's deterioration. The tax advantage of an accelerated method is irrelevant to the Yard and this thesis. However, if the present means of funding is changed so that the Yard would be required to maintain its capital, accelerated depreciation might be

advantageous. Finally, the assets to be discussed are only indirectly associated with production, while their usage is relatively constant. Thus, the variable charge methods are not considered appropriate means of depreciation for these assets.

D. CAPITALIZATION CRITERIA

Before an item can be depreciated, a determination must be made whether to capitalize it (record it as an asset) or to expense it as a current operating cost of the period in which is it acquired. These decisions are based on a dollar threshold for valuation and a minimum useful life.

1. Dollar Value Threshold

The first threshold sets the minimum dollar level for an item to be recorded as an asset and subsequently depreciated. Any item falling below this level is considered an expense. Presently, the Yard's policy is to capitalize an item if it costs $200 or more [Ref. 9]. According to the composite results of two 1979 polls, one conducted by the National Association of Accountants and the other by the Financial Executive Institute, 53% of commercial manufacturing firms not subject to the Cost Accounting Standards (CAS) had capitalization thresholds less than $500. Forty-two percent of the respondents set thresholds between $500 and $1,000 and 5% had thresholds of greater than $1,000 [Ref. 10]. Additionally, the Cost Accounting Standards Board (CASB) has increased the minimum limit for capitalizing an asset in CAS 404 "Capitalization of

Tangible Assets" from $500 to $1,000. This change is applicable to defense contractors subject to the CAS.

An informal survey of eight shipyards by the author revealed that five have set $1,000 as their minimum capitalization level and two use $500. One shipyard had no set policy but decides on an asset-by-asset basis.

2. Minimum Life Threshold

In addition to the dollar criterion, an asset to be capitalized must have a minimum life expectancy, usually greater than one year. Otherwise, the item should be expensed as a current consumable. The Yard's policy is for a capitalized asset to have a life of greater than one year. The CASB has set two years as the upper allowable limit for an asset's minimum life.

3. Conclusions

A dollar threshold of $1,000 was selected by the author for defining assets to be depreciated. This level was decided upon to conform with the commercial shipyards surveyed and with CAS 404. It is felt that items falling below this level are not sufficiently material to be considered assets nor are they worth the additional clerical costs that would be required to track them, if the items were capitalized. The asset life criterion of greater than one year was chosen.

V. ASSETS

A. ASSET DESCRIPTION

This thesis will deal with 92 assets and their associated improvements. These assets have not been previously capitalized and no depreciation of them is included in the Yard's overhead cost pool. The complete list of assets and improvements along with category code (to be explained below), year acquired, acquisition/improvement code, description of improvement, acquisition cost, useful life, and annual depreciation can be found in Appendix B. The acquisition/improvement code, is a single letter code--"A" for acquisition or "I" for an improvement. It is used to describe the nature of each line in the asset listing found in Appendix B.

Noncurrent Yard assets labelled as Land, Structures, and Equipment on the Yard's balance sheet are broken down into five categories. They are Land, Buildings, Other Structures and Facilities, Automobiles and Trucks, and Machinery and Equipment. Land is not depreciated. Therefore, it was not taken into consideration for the purpose of this thesis. Neither were Automobiles and Trucks nor Machinery and Equipment considered. The former category's depreciation is already included in the Mobile and Weight Lifting Equipment Cost Center (82544), while the latter's depreciation is included in various cost centers that use machinery and equipment.

The two categories of interest are Buildings and Other Structures and Facilities (labelled "B" and "SF", respectively, in the category code in Appendix B). These asset categories have been previously included on the Yard's balance sheet, along with their accumulated depreciation. However, their depreciation was computed for statistical purposes only and was not broken down into its industrial and nonindustrial components; nor was it added to the overhead cost pool.

B. DATA COLLECTION AND STRUCTURING

The asset data were obtained by the author from the Yard's property cards for Buildings and Structures and Facilities. Each asset was assigned an asset number which corresponded to its building number (as per the Yard's building numbering system). In cases of assets that were not specifically numbered (e.g., steam system, shipways, or sidewalks) a number between 200.0 and 234.0 was assigned. Building identification numbers that were followed by a letter were assigned a decimal number (building 40A became 40.1, 40B became 40.2, etc.). This numbering was also employed on the "200" assets, where some assets could be grouped together for costs common to the group and then be listed separately for costs unique to one identifiable asset. For example, piers became 205.0 for general pier costs; and individual piers were decimalized. Pier one became 205.1, pier two, 205.2, etc. Yard tower cranes (210's) were also treated in this manner.

C. CAPITALIZATION ASSUMPTION

Years prior to FY-82 will be ignored. The only cost that will be treated as relevant is the remaining undepreciated value of each asset and its improvement as of the beginning of FY-82. The statistical depreciation of the subject assets in previous years is a sunk cost and, as such, will not be considered for the purposes of this thesis.

VI. CALCULATIONS

This chapter will cover the procedure used to compute a new Yard overhead rate which would result from adding the new depreciation costs to the overhead cost pool. First, all assets falling below the $1,000 capitalization threshold were expensed. Second, acquisition and improvement costs were summed by asset. Third, the industrial portion of each asset's total annual depreciation was allocated to the appropriate cost center(s). Fourth, the cost centers' additional overhead costs were totalled, adjusted for drydock charges (which are totally recovered from customers by a separate charge), and then added to the previous FY-82 budgeted overhead to produce a new total overhead cost to be recovered. The resulting overhead increase from the addition of the write-off of assets with costs less than $1,000 was also determined. Fifth, new overhead rates were derived for each category of direct labor charges. Finally, new drydock rates were computed.

A. CAPITALIZATION THRESHOLD OF $1,000 AND EXPENSING OF ASSETS

Of the initial 304 entries in Appendix B, 56 were removed because their acquisition costs were less than the $1,000 threshold. However, the remaining undepreciated book value of these removed assets had to be expensed. The value of all assets must be accounted for, either by annual depreciation until the assets' useful lives expire or as a one-time expense for items falling below the threshold.

A computer program written by the author was used to calculate and then sum the remaining undepreciated balance of the removed assets. The remaining balance was computed by the following formula:

(YEAR + LIFE) - 82 x ANNUAL DEPRECIATION = BALANCE VALUE

where:

Year is the last two digits of the acquisition year.

Life is the asset's useful life.

82 is used for 1982.

Balance Value is the asset's remaining undepreciated value.

Next, the balance values for all assets were summed to the total value to be expensed. See Appendix C for a listing of eliminated assets' costs and their sum.

B. SUMMATION OF ACQUISITION AND IMPROVEMENT COSTS

The remaining assets whose acquisition and improvement costs were above the $1,000 threshold were totaled (along with their annual depreciation) by asset. Each asset's cost was the sum of its acquisition and/or improvement costs. Appendix D shows the total acquisition/improvement and annual depreciation costs by asset, as well as the total acquisition and annual depreciation costs of all the assets.

C. ALLOCATION OF INDUSTRIAL DEPRECIATION TO COST CENTERS

The assets were matched with their appropriate cost center(s) as listed in Appendix E. This matching information was provided by the Industrial Manager's Staff at the Yard. Two of the assets, the Administration Building (1.0) and the Comptroller and ADP Building (31.0), had their costs allocated directly to nonindustrial costs and indirectly to nonindustrial costs via cost centers. Each building has identifiable areas that are 100% nonindustrial in nature. The corresponding portion of depreciation was allocated directly as nonindustrial. The remaining portion of depreciation was allocated to multiple cost centers. These cost centers, in turn, have their own allocation percentages for industrial/nonindustrial (Appendix F). The calculations are exhibited in Tables 1 and 2.

One additional asset, the Combined Shop Building (8.0), had its depreciation divided between two cost centers, as shown in Table 3.

Next, each cost center had its cost allocated to the Yard industrial overhead cost pool. The allocation percentages used to separate the industrial costs from the nonindustrial costs are listed in Appendix F. Two allocation methods labeled "PRESENT" and "RECOMMENDED", have been presented in Appendix F. The "present" method is the one currently used by the Yard. A study, conducted by the Industrial Manager's Staff, revealed that there are no apparent allocation bases underlying the present method. There is no documentation available to substantiate the present percentages. The allocation percentages

TABLE 1

Administration Building (1.0)

Total Annual Depreciation = $3,091.32

Cost Center	% of Builging based on sq. ft.		Allocation
Direct - Nonindustrial	19	=	$ 587.35
82602 - Industrial Manager's Staff	7	=	216.39
82605 - Safety Staff	17	=	525.50
82606 - Planning, Management Services Staff	5	=	154.57
82607 - Industrial Engineering Division	8	=	247.31
82609 - Management Services Division	11	=	340.05
82631 - Civilian Personnel Office	11	=	340.05
82677 - Engineering Division, Industrial Department	22	=	380.10
TOTAL	100		$3,091.32

TABLE 2

Comptroller and ADP Building (31.0)

Total Annual Depreciation = $3,509.77

Cost Center	% of Building based on sq. ft.	Allocation
Direct - Nonindustrial	50	$1,754.89
82608 - Management Information Systems Division	33	1,158.22
82641 - Fiscal Department	17	596.66
TOTAL	100	$3,509.77

TABLE 3

Combined Shop (8.0)

Total Annual Depreciation = $13,098.09

Cost Center	% of Building based on sq. ft.	Allocation
82321 - Pipefitting Shop	70	$9,168.66
82343 - Materials Handling Shop	30	3,929.43
TOTAL	100	$13,098.09

now in use were apparently arrived at previously by negotiation. The study proposed new allocation percentages for the various cost centers by reference to different allocation bases, depending upon the nature of the cost center (e.g., Yard personnel on the basis of their work assignments and building costs on the basis of square footage) [Ref. 11].

The industrial cost centers are not subject to industrial/nonindustrial allocation, since 100% of their costs are industrial. Along this same line, several assets that belong to allocable cost centers, that is, cost centers having both industrial and nonindustrial costs, are nonetheless identifiable as 100% industrial. A list of these assets can be found in Appendix G.

The resulting industrial overhead allocation by allocable and nonallocable cost center is presented in Appendix H.

D. NEW TOTAL INDUSTRIAL OVERHEAD COSTS

A summation of all cost centers' additional industrial overhead costs was made for each allocation method, present and recommended. These totals were next adjusted by removing the drydock shop's costs. (As will be explained below, all drydock costs are recoverable from direct customer charging.) The results are the additional overhead costs due to depreciation of real property. New total overhead costs to be recovered were initially determined by adding together the additional overhead costs and the previously budgeted overhead costs for FY 82. Then, these totals were both reduced by the

budgeted miscellaneous income for FY 82 to arrive at the Yard's new total overhead (see Table 4).

TABLE 4

New Total Industrial Overhead Costs

	Present Method	Recommended Method
Total of cost center's additional overhead	$ 561,095	$ 597,453
Less drydock shop's share	24,240	24,240
Total additional overhead	$ 536,855	$ 573,213
Add previous overhead total	8,770,927	8,770,927
Subtotal	$9,307,782	$9,344,140
Less miscellaneous income	61,000	61,000
New total overhead	$9,246,782	$9,283,140

The effect on the new overhead costs of the writing off of real property improvements costing less than $1,000 is shown in Tables 5 and 6. This would be a one-time expense to remove costs accumulated over the years. The author feels, for this reason, that this cost and its affect upon overhead should be kept apart from the increases due to depreciation alone. This is so the increases from including depreciation can be compared with the previous costs and rates without the distortion (which would be for only one year) caused by the write-off expense.

TABLE 5

Write-off Expense Adjusted for Drydock Charges

Write-off expense	$9,220
Less drydock portion	563
Write-off to be added to overhead	$8,657

The Drydock Shop's portion of the write-off expense was deleted so that it can be applied in computing the new drydock rate (see Section F). In Table 6 the net write-off expense was added to the new total overhead expense from Table 4. The increase to overhead was less than .1% for both allocation methods.

TABLE 6

Overhead Costs Adjusted for Write-off Expense

	Present Method	Recommended Method
New total overhead	$9,246,782	$9,283,140
Write-off to be added to overhead	8,657	8,657
Overhead with write-off	$9,255,439	$9,291,797

E. NEW OVERHEAD RATES

As explained in Chapter III, Section D4, the Yard charges customers for overhead costs as a percentage of customers'

direct labor costs. These labor costs fall into four categories, each with its own overhead percentage rate. The labor categories, with their current FY 82 hourly rates and annual budgeted costs, are listed in Table 7.

TABLE 7

Labor Costs

Labor Category	Hourly Rate	Budgeted Labor Costs
Industrial Regular Hours	$13.82*	$10,396,827
Industrial Overtime Hours	14.70	1,037,776
Engineering Regular Hours	17.24*	399,123
Engineering Overtime Hours	18.21	-0-
Total Budgeted Labor Costs		$11,833,726

*Note: regular hourly rates are accelerated by 141% to include all fringe benefit costs. These benefits do not accrue on overtime, so overtime hourly rates are not accelerated.

The total regular or overtime hourly rate by labor category consists of the category's hourly labor rate plus its hourly overhead (O/H) rate. The hourly overhead rate is computed by the following formula:

Hourly O/H Rate = (hourly labor rate) x (O/H % rate)

It is the Yard's policy not to charge customers more for overtime work. Therefore, the total hourly rate for regular and overtime hours is the same. As a result, the hourly overhead rate for overtime is lower than that for regular hours so that the two total rates will be equal. Finally, the same overhead percentage rate is used for both industrial and engineering regular hours.

The principal objective of the overhead rate is to enable the Yard to break even. To this end, the rates are set so that a small net income would be generated, at least from the budgeted labor hours; so, there is money to cover subsequent overhead cost increases.

To compute the overhead percentage rates, the average overhead rate was first computed by the formula below:

$$\text{Average overhead \% rate} = \frac{\text{total overhead to be recovered}}{\text{budgeted total direct labor costs}}$$

The average overhead percentage rate was used as a starting point in an iterative process (described below).

Steps taken to compute overhead rates:

Industrial and Enginerring Overhead Rate Calculations:

1. Initially the industrial regular overhead percentage rate is set equal to the average overhead percentage rate. The industrial regular overhead percentage rate is multiplied by the regular hourly labor rate (accelerated) to arrive at

the overhead hourly rate. On each subsequent iteration, the industrial regular overhead percentage rate is increased by small amounts.

REG. O/H % x REG. LABOR RATE = O/H HOURLY RATE (1)

2. The regular hourly labor and overhead hourly rates are added together for the total regular hourly rate.

O/H HOURLY RATE + REG. LABOR RATE

= TOTAL REG. HOURLY RATE (2)

3. The total overtime (O.T.) hourly rate is set equal to the total regular hourly rate.

TOTAL REGULAR HOURLY RATE = TOTAL O.T. HOURLY RATE (3)

4. The total overtime hourly rate less the overtime hourly labor rate, all divided by the overtime hourly labor rate yields the industrial overtime overhead percentage rate.

$$\frac{\text{TOTAL O.T. HOURLY RATE} - \text{O.T. LABOR RATE}}{\text{O.T. LABOR HOURLY RATE}} = \text{O.T. O/H \% RATE} \quad (4)$$

5. The engineering regular overhead percentage is equal to the industrial regular overhead percentage.

INDUSTRIAL REG. OVERHEAD % RATE = ENGINEERING REG. O/H % RATE (5)

6. Steps 1 through 4 are repeated for the engineering regular and overtime rates.

Applied Overhead Calculations:

7. Once the labor categories' overhead percentage rates have been determined, they are multiplied by their respective budgeted annual labor costs. The results are the budgeted overhead applied for each labor category.

LABOR CATEGORY O/H % RATE x LABOR CATEGORY BUDGETED ANNUAL COST

= LABOR CATEGORY BUDGETED APPLIED O/H (7)

8. The three budgeted overhead applied amounts are added together for the total budgeted overhead applied.

$$\sum \text{LABOR CATEGORY BUDGETED APPLIED O/H} = \text{TOTAL BUDGETED APPLIED O/H} \quad (8)$$

Change to Retained Earnings:

9. Total budgeted overhead applied is subtracted from overhead to be recovered (the difference, if negative, is net income to retained earnings; if positive, it is a net loss).

O/H TO BE RECOVERED - TOTAL BUDGETED APPLIED O/H

= (-) NET INCOME OR (+) NET LOSS (9)

If the above process results in a net loss, the process is repeated with the industrial regular hours overhead percentage rate increased from the previous iteration. The process is repeated until a very small negative balance (net income) is obtained.

The above calculations were performed for additional overhead from both depreciation alone and depreciation plus the write-off expense. Both present and recommended allocation methods were used for depreciation alone and for depreciation with the write-off expense (Table 8).

TABLE 8

Computation Matrix

	Present Allocation Method	Recommended Allocation Method
Depreciation	X	X
Depreciation + Write-off	X	X

The following illustration shows the final iteration of the overhead rate determining process. The recommended method for allocation is used with overhead increased for depreciation alone. A complete listing of all four sets of resultant overhead rates can be found in Table 10. The resulting applied overheads and net incomes are listed in Table 11. (Both tables appear in Chapter VII.) The numbers in parentheses

refer to the step and formula number in the computation process presented previously.

Industrial Rates

79.4%	x	13.82	=	10.97	(1)
10.97	+	13.82	=	24.79	
24.79	-	14.70			
14.70			=	68.64%	

Engineering Rates

79.4%	x	17.24	=	13.69	(1)
13.69	+	17.24	=	30.93	(2)
30.93	-	18.21			
18.21			=	69.85%	(4)

Applied Overhead

Industrial regular hours:

79.40%	x	10,396,827	=	$8,255,081	(7)

Industrial O.T. hours:

68.64%	x	1,037,776	=	$ 712,541	(7)

Engineering regular hours:

79.40%	x	399,123	=	$ 316,904	(7)
Total budgeted applied overhead				$9,284,526	(8)

NOTE: No engineering overtime hours have been planned.

Change to Retained Earnings

Overhead to be recovered	$9,283,140	
Less budgeted applied overhead	$9,284,526	(9)
Net loss (net income)	($ 1,386)	

F. NEW DRYDOCK RATE

The drydocks' overhead costs are not part of the Yard's overhead cost pool. Rather, they are charged directly to the vessels utilizing the drydocks. This charge is computed for each fiscal year. It is based upon feet-days in drydock, that is, the vessel's length overall (LOA) times the number of days in drydock. The total budgeted annual footage is divided into the Drydock Shop's (82344) budgeted overhead to determine the rate per foot. For example, the USCGC GALLATIN'S LOA is 378 feet and she is scheduled for 21 days in drydock. Her direct drydock charge would be based on 378 ft x 21 days or 7,938 feet.

The new drydock rate was determined by adding the additional overhead due to depreciation to the previous drydock budgeted overhead. This sum was then divided by the budgeted annual footage to obtain the new drydock rate. There was also a portion of the Yard's write-off expense attributable to the drydock shops. This value was obtained by adding together the undepreciated asset values, listed in Appendix F, for asset 67.0, Drydock 1; asset 68.0, Drydock 1 Headhouse; and asset 75.0, Drydock 2 Headhouse. Separate calculations were made to include this one-time extraordinary expense in the drydock

rate. The results of these calculations are shown in Table 13 (Chapter VII).

VII. FINDINGS

A. YARD OVERHEAD RATE

The changes to the Yard's total overhead costs are found in Table 9. Both allocation methods, present and recommended, were applied to the increase due to depreciation alone and then to the increase due to depreciation plus the write-off expense. The additional overhead from depreciation was higher using the recommended allocation method. This was primarily due to large increases in the industrial allocation from the present method for the following cost centers: Steam and Sanitary Sewers (82543); Piers, Bulkheads and Shipways (82563); and Streets and Roads (82566) plus a modest increase in Utility Lines (82542) industrial allocation coupled with a large annual depreciation.

The current overhead rate (FY-82) is presented below in Table 10 along with the four alternative increased rates. Table 11 displays the applied overhead amounts for each labor category. The current FY 82 figures are provided for comparison. Also, the net income that would result from each of the alternative overhead rates, is presented for each set of calculations at the bottom of Table 11.

B. EFFECT ON PROJECT COSTS

Table 12 presents the effect on project costs of each overhead rate formulation. To take into account all the labor

TABLE 9

Change in the Yard's Overhead

	Present Allocation Method	Recommended Allocation Method
Depreciation		
Previous O/H	$8,770,927	$8,770,927
Less: Miscellaneous Income	61,000	61,000
Previous O/H to Recover (a)	$8,709,927	$8,709,927
Add: Additional O/H From Depreciation	561,095	597,453
Subtotal	$9,271,022	$9,307,380
Less: Additional Drydock O/H	24,240	24,240
New O/H to Recover (b)	$9,246,782	$9,283,140
Increases	6.16%	6.58%
Addition of Write-off Expense		
New O/H to Recover (b)	$9,246,782	$9,283,140
Add: Write-off Expense	8,657	8,657
New O/H with Write-off	$9,255,439	$9,291,797
Increases		
From Previous O/H to Recover (a)	6.26%	6.68%
From New O/H to Recover (b)	.094%	.093%

TABLE 10

Overhead Rates

	Current Overhead Rate	Depreciation by Present Method	Depreciation by Recommended Method	Depreciation & Write-off by Present Method	Depreciation + Write-off by Recommended Method
Indust. Reg. Hrs.					
Overhead % Rate	74.60%	79.10%	79.40%	79.20%	79.50%
Labor Rate/Hr.	$13.82	$13.82	$13.82	$13.82	$13.82
Overhead Rate/Hr.	10.31	10.93	10.97	10.95	10.99
Total Rate/Hr.	$24.13	$24.75	$24.79	$24.77	$24.81
Indust. O.T. Hrs.					
Overhead % Rate	64.15%	68.37%	68.64%	68.47%	68.78%
Labor Rate/Hr.	$14.70	$14.70	$14.70	$14.70	$14.70
Overhead Rate/Hr.	9.43	10.05	10.09	10.07	10.11
Total Rate/Hr.	$24.13	$24.75	$24.79	$24.77	$24.81
Engineering Reg. Hrs.					
Overhead % Rate	76.40%	79.10%	79.40%	79.20%	79.50%
Labor Rate/Hr.	$17.24	$17.24	$17.24	$17.24	$17.24
Overhead Rate/Hr.	12.86	13.63	13.69	13.65	13.71
Total Rate/Hr.	$30.10	$30.87	$30.93	$30.89	$30.95
Engineering O.T. Hrs.					
Overhead % Rate	65.29%	69.52%	69.85%	69.63%	69.96%
Labor Rate/Hr.	$18.21	$18.21	$18.21	$18.21	$18.21
Overhead Rate/Hr.	11.89	12.66	12.72	12.68	12.74
Total Rate/Hr.	$30.10	$30.87	$30.93	$30.89	$30.95
Average Overhead %	73.60%	78.10%	78.41%	78.21%	78.52%

Table 11

Applied Overhead Amounts
and
Resulting Net Incomes

	Current Overhead Rate	Depreciation by Present Method	Depreciation by Recommended Method	Depreciation & Write-off by Present Method	Depreciation & Write-off by Recommended Method
Overhead Applied to:	Applied O/H	Applied O/H	Applied O/H	Applied O/H	Applied O/H
Indust. Reg. Hrs.	$7,756,033	$8,223,890	$8,255,081	$8,234,287	$8,265,477
Indust. O.T. Hrs.	665,733	709,614	712,541	710,590	713,517
Engineering Reg. Hrs.	297,746	315,706	316,904	316,105	317,303
TOTALS	$8,719,512	9,249,210	$9,284,526	$9,260,982	$9,296,297
Less: Overhead to be Recovered	8,709,927	9,246,782	9,283,140	9,255,439	9,291,797
Net Income	$ 9,585	$ 2,428	$ 1,386	$ 5,543	$ 4,500

TABLE 12

Effect on Sample Project Costs

Project A

	Labor	O/H	Mat'ls	Total	Difference from 82	% Diff.
82	165	122	5	292	-0-	-0-
A	165	129	5	299	7	2.40
B	165	129	5	299	7	2.40
C	165	129	5	299	7	2.40
D	165	130	5	300	8	2.73

Project B

	Labor	O/H	Mat'ls	Total	Difference from 82	% Diff.
82	45,123	33,247	5,689	84,059	-0-	-0-
A	45,123	35,268	5,689	86,080	2,021	2.40
B	45,123	35,404	5,689	86,216	2,157	2.57
C	45,123	35,313	5,689	86,125	2,066	2.46
D	45,123	35,449	5,689	86,261	2,202	2.62

Project C

	Labor	O/H	Mat'ls	Total	Difference from 82	% Diff.
82	315,058	232,135	217,249	764,442	-0-	-0-
A	315,058	246,249	217,249	778,556	14,114	1.85
B	315,058	247,195	217,249	779,502	15,060	1.97
C	315,058	247,564	217,249	779,871	14,429	1.89
D	315,058	247,510	217,249	779,817	15,375	2.01

Project D

	Labor	O/H	Mat'ls	Total	Difference from 82	% Diff.
82	476,054	350,757	468,515	1,295,326	-0-	-0-
A	476,054	372,084	468,515	1,316,653	21,327	1.65
B	476,054	373,512	468,515	1,318,081	22,755	1.76
C	476,054	372,560	468,515	1,317,129	21,803	1.68
D	476,054	373,988	468,515	1,318,557	23,231	1.79

categories, a weighted overhead percentage rate was used. The following formula was employed to obtain the weighted average for each formulation of overhead

$$\frac{\text{Total Applied Overhead}}{\text{Budgeted Total Direct Labor Costs}} = \text{Weighted average overhead \% rate}$$

The labelling and associated weighted average overhead rate used in Table 12 is as follows:

Procedure	Description	Wtd O/H
82	Current O/H Percentage Rate	73.68%
A	Depreciation, Present Method	78.16%
B	Depreciation, Recommended Method	78.46%
C	Depreciation & Write-off, Present Method	78.26%
D	Depreciation & Write-off, Recommended Method	78.56%

The projects represented in Table 12 were selected from the Yard's Project Summary Report. The criterion used in selection was to present a range of total project costs from a low of less than $500 to a high of greater than $1,000,000. Project A was a boom inspection for a 180 ft. buoy tender. Project B was a bilge modification for a 210 ft. Medium Endurance Cutter. Project C represents a composite of several jobs for a 205 ft. Medium Endurance Cutter. These jobs were naval engineering and electronic engineering yard availabilities, sewage holding tank modification, and miscellaneous work. Project D is also a composite for a 205 ft. Medium

Endurance Cutter. The jobs represented include elecgronic engineering yard availability, ventilation and rehabilitation, electrical conversion, and miscellaneous work.

C. EFFECT ON DRYDOCK COSTS

It was necessary to compute two new rates for the drydock. One rate reflects the overhead increase due to depreciation alone, and the other rate takes into account depreciation and the write-off expense. The drydock write-off expense, computed as described in Section VI.F, was $563. Since the Drydock Shop (82344) is 100% industrial, the two allocation methods do not apply.

Table 13 presents the current and new rates.

D. EFFECT ON BUDGETED INCOME STATEMENT

Comparative Budgeted Income Statements are presented in Tables 14 and 15. Table 14 contains the current budgeted income statement and the statement resulting from the inclusion of real property depreciation. Table 15 is identical in format to Table 14 but also includes the write-off expense. The percentage increases in total expenses from the current FY 82 budgeted income statement are shown at the bottom of each income statement.

TABLE 13

Dry Dock Rates (per day)

Current Drydock Rate

FY 82 Budgeted Overhead / FY 82 Budgeted Footage	$304,695 / 68,870 ft.	=	$4.36/ft.

Drydock Rate with Depreciation

Budgeted Overhead	$304,695		
Add: Depreciation	24,275		
New Overhead	$328,970		
	328,970 / 68,870 ft.	=	$4.71/ft.
Increase over current rate	8.03%		

Drydock Rate with Depreciation and Write-off Expense

Overhead	$328,970		
Add: Write-off	563		
New Overhead	$329,533		
	329,555 / 68,870 ft.	=	$4.78/ft.
Increase over current rate	9.63%		

TABLE 14

Comparative Budgeted Income Statement (Depreciation Only)
U.S. Coast Guard Yard, Curtis Bay, MD for FY-82

	CURRENT		PRESENT METHOD		RECOMMENDED METHOD	
Revenue						
Income from Industrial Ops.						
Charges for Dir. Materials	7,768,176		7,768,176		7,768,176	
Charges for Dir. Labor	11,833,726		11,833,726		11,833,726	
Charges for Applied O/H	8,719,512		9,249,210		9,284,526	
Total Charges		28,321,414		28,851,112		28,886,428
Sale of Scrap		50,000		50,000		50,000
Sale of Excess Materials		10,000		10,000		10,000
Other Income		1,000		1,000		1,000
Total Indust. Income		28,382,414		28,912,112		28,947,428
Expenses						
Direct Materials		7,768,176		7,768,176		7,768,176
Direct Labor						
Reg. Hours	10,795,950		10,795,950		10,795,950	
O.T. and Premium Hours	1,037,776		1,037,776		1,037,776	
Total Labor		11,833,726		11,833,726		11,833,726
Overhead						
Industrial	3,190,198		3,433,643		3,433,643	
Service	170,579		170,980		171,111	
Operations & Maintenance	1,797,044		2,049,081		2,090,179	
General Administration	3,613,106		3,654,079		3,649,207	
Total Overhead		8,770,927		9,307,782		9,344,140
Total Expenses		28,372,829		28,909,684		28,946,042
Net Income		9,585		2,428		1,386
Change in Expenses from Current Method		-0-		536,855 1.9%		573,213 2.0%

TABLE 15

Comparative Budgeted Income Statement (Depreciation and Write-Off)
U.S. Coast Yard, Curtis Bay, MD FY-82

Revenue	CURRENT		PRESENT METHOD		RECOMMENDED METHOD	
Income from Industrial Ops.						
Charges for Dir. Materials	7,768,176		7,768,176		7,768,176	
Charges for Dir. Labor	11,833,726		11,833,726		11,833,726	
Charges for Applied O/H	8,719,512		9,920,982		9,296,297	
Total Charges		28,321,414		28,862,884		28,898,199
Sale of Scrap		50,000		50,000		50,000
Sale of Excess Materials		10,000		10,000		10,000
Other Income		1,000		1,000		1,000
Total Indust. Income		28,382,414		28,923,884		28,959,199
Expenses						
Direct Materials		7,768,176		7,768,176		7,768,176
Direct Labor						
Reg. Hours	10,795,950		10,795,950		10,795,950	
O.T. and Premium Hours	1,037,776		1,037,776		1,037,776	
Total Labor		11,833,726		11,833,726		11,833,726
Overhead						
Industrial	3,190,193		3,433,643		3,433,643	
Service	170,579		170,980		171,111	
Operations & Maintenance	1,797,044		2,049,081		2,090,179	
General Administration	3,613,106		3,654,079		3,649,207	
Total Overhead		8,770,927		9,307,782		9,344,140
Write-off		--		8,657		8,657
Total Expenses		28,372,829		28,918,341		28,954,699
Net Income		9,595		5,543		4,500
Change in Expenses from Current Method		0		545,512		581,870
		0%		1.9%		2.1%

VIII. CONCLUSIONS

A. MATERIALITY

The additional overhead costs resulting from including real property depreciation are considered material. Although the maximum increase in total expense was $573,213 or 2.02% (from Table 14, using the recommended allocation method), this is still a significant amount of money. This amount is equivalent to a medium sized project (see Table 12). This increase represents a 6.58% increase in overhead (see Table 9) and would necessitate raising the Industrial regular hours overhead percentage rate from the current 74.6% to 79.4%. Any increase in overhead costs that would result in exceeding the current 75% overhead percentage rate ceiling would require authorization from Coast Guard Headquarters. Therefore, in light of the above factors, the author feels that an increase due to depreciation would be material.

From an accounting point of view, the difference in costs between the present and the recommended allocation methods was not relevant. What is important is the rationale and supporting documentation behind each method. The recommended method was preferred by the author since it does have a supporting basis. From available records, the present method appears to have been developed arbitrarily.

The write-off expense of $8,657 was considered an immaterial amount in relation to the Yard's total expenses. The

inclusion of the write-off in the overhead cost had no effect upon the overhead rates calculated without using this added expense.

B. RELEVANCE

The relevance of depreciation based on historical costs diminishes with the age of the asset. If depreciation were recovered from customer charges and held in a sinking fund for asset replacement, the money generated from depreciation of a 1943 asset could not realistically be expected to replace the identical asset at 1982 costs.

C. RECOMMENDATION

The issue here is this: What would be the objective of the Coast Guard Yard in including real property depreciation as part of overhead costs? Just to track the expiration of assets' historical costs or to attempt to determine the current cost of operating the Yard by using the assets' current cost depreciation? Without Congressional action a third alternative of recovering assets' costs (historical, current or replacement) through depreciation charges is not possible.

Although the effect of adding historical cost depreciation to overhead has been presented in this thesis, it is recommended that current costs be used for any subsequent studies. The inflation rate since the end of the second world war has made the historical acquisition costs of the Yard's assets irrelevant for any type of cost analysis. Current cost would

provide more useful information as to operating costs. The use of current costs vice historical costs for government accounting would require Congressional approval. The General Accounting Office (GAO) and the FASB are both currently examining proposals that move away from historical costing towards current costing as a means of measurement. For managerial purposes, however, the value and relevance of current cost depreciation included in the Yard's overhead would have to be evaluated.

APPENDIX A

YARD COST CENTERS

8230 Industrial Overhead Account Number

cost center	
82310	Structural Group
82311	Shipfitting Shop
82312	Sheetmetal Shop
82313	Welding Shop
82320	Mechanical Group
82321	Pipefitting Shop
82322	Inside Machine Shop
82323	Outside Machine Shop
82330	Electro Group
82331	Electrical Shop
82332	Electronic Shop
82333	Ordnance Shop
82340	Services Group
82341	Woodworking Shop
82342	Paint Shop
82343	Materials Handling Shop
82344	Drydock Shop
82345	Boat Shop
82346	Central Toolroom
82397	Tug and Sea Mule
82399	Unallocated Production Costs

8240 Public Works Department Shops Account Number

cost center	
82445	Grounds and Janitorial Services Shop
82449	Utilities and Building Maintenance Shop

8250 Operations and Maintenance Account Number

cost center	
82542	Utility Lines
82543	Storm and Sanitary Sewers
82544	Mobile and Weight Lifting Equipment
82545	Powerhouse Branch
82549	Trash Collection and Disposal
82563	Piers, Bulkhead and Shipways
82565	Buildings
82566	Street and Roads
82575	Maintenance of Major Shop Equipment

8260 General Administrative and Management Expense Account Number

cost center	
82602	Industrial Manager and Staff
82605	Safety Staff
82606	Planning, Management & Services Dept.
82607	Industrial Engineering Division
82608	Management Information Systems Staff
82609	Management Services Division

82631	Civilian Personnel Office
82641	Fiscal Department
82651	Supply and Procurement Department Staff
82652	Procurement Division
82653	Storage and Distribution Branch
82654	Inventory Management Branch
82655	Traffic Branch
82656	Technical Branch
82671	Industrial Department Staff
82677	Engineering Division - Industrial Dept.
82697	Depreciation of Machinery and Equipment not included in shop overhead
82698	Cash Discount
82699	Unclassified Administrative Expense

APPENDIX B

LIST OF ASSETS AND IMPROVEMENTS

COLUMN DESCRIPTORS:

1. asset category code
2. year acquired
3. acquisition/improvement code
4. improvement description
5. acquisition cost
6. asset life
7. depreciation

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
1.0 ADMINISTRATION BUILDING							
	B	42	A		165400.75		2205.33
	B	42	A	FLAGPOLE	2000.50		40.00
	B	44	I	ALTERATION	1267.73		17.36
	B	45	I	ALTERATION	1000.72		13.89
	B	45	I	FLAGPOLE	275.47		5.85
	B	46	I	ALTERATION	500.71		7.04
	B	47	I	PARTITION	400.70		5.71
	B	49	I	PARTITIONS	1500.68		22.06
	B	49	I	ALTERATION	750.68		11.03
	B	65	I	ALTERATION	9016.42		214.66
	B	78	I	RPLC STAIRS	13885.39		356.03
	B	79	I	RENVTE 3RD FLOOR	8455.38		221.99

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
4.0 WOOD SHOP							
	B	39	A		175000.60		2916.67
	B	45	I	VENT	293.54		5.43
	B	46	I	FAN	250.53		4.72
	B	48	I	PARTITION	330.51		6.48
	B	48	I	UNKWN IMPRVMNT	124.51		2.43
	B	72	I	MOD & ADD FLOOR	34497.27		1277.66
	B	73	I	MOD 2ND FLOOR	90238.26		3470.69
	B	79	I	VENT PHOTO LAB	20246.20		1007.86
	B	80	I	EMERG LIGHTING	2861.05		572.20
5.0 BOAT SHOP							
	B	70	I	TOILETS	37919.20		1895.95
	B	71	I	UNKWN IMPRVMNT	175.27		6.48
	B	76	I	RENVTE HEATING SYS	34734.14		2481.00
	B	80	I	INDUST HYGENE SYS	522149.10		52214.90
	B	80	I	EMERG LIGHTING	4616.05		923.20
5.1 BOAT SHOP ANNEX							
	B	43	A		57500.50		1150.00
	B	50	I	SPRINKLER SYS	4981.43		115.84
	B	65	I	ELECTRICAL IMPRVE	3186.28		113.79
	B	76	I	ELECTRICAL ALTER	24950.17		1467.64
6.0 DEGREASING BUILDING							
	B	65	A		12244.25		489.76
	B	74	I	MOD VENTS & LIGHTS	45746.16		2859.13

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
7.0 YARD TOILET							
	B	43	A		16500.60		330.00
8.0 COMBINED SHOP							
	B	42	A		343570.60		5726.17
	B	45	I	ALTERATION	2013.57		35.32
	B	45	I	MONORAIL INSTALL	3180.57		55.79
	B	45	I	PARTITION	260.57		4.56
	B	45	I	PARTITION	360.57		6.32
	B	45	I	HOOD	135.57		2.37
	B	46	I	MONORAIL	375.56		6.70
	B	46	I	FAN & HOOD	638.56		11.39
	B	46	I	UNKWN IMPRVMNT	1370.56		24.46
	B	46	I	PARTITION	475.56		8.48
	B	46	I	VENT	25.53		.57
	B	46	I	UNKWN IMPRVMNT	747.68		10.99
	B	46	I	PARTITION	716.56		12.79
	B	47	I	VENT	687.55		12.49
	B	47	I	MONORAIL	193.57		3.39
	B	48	I	LADDER	121.54		2.24
	B	49	I	ALTERATION	24000.53		452.83
	B	50	I	FIRE ESCAPE LADDER	1400.52		26.92
	B	65	I	ELECTRICAL IMPRVE	4244.37		114.70
	B	74	I	UNKWN IMPRVMNT	69904.28		2496.57
	B	75	I	CAFETERIA IMPRVE	2109.29		72.72

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
8.0 COMBINED SHOP (CONTINUED)							
	B	76	I	LOCKER ROOM	8604.26		330.92
	B	80	I	INSTALL FIRE EXIT	6001.05		1200.20
	B	80	I	EMERG LIGHTING	7195.05		1439.00
	B	80	I	MOD CAFETERIA	11225.10		1122.50
10.0 SHIPWAY HEAD HOUSE							
	B	42	A		31370.75		418.27
11.0 MACHINE SHOP							
	B	75	I	VENT SOLVENT TANK	1223.10		122.30
13.0 SHIPWAY TRANSFORMER HOUSE							
	B	42	A		3000.60		50.00
	B	60	I	REHAB	200220.25		8008.80
	B	65	I	REHAB	9611.20		480.55
	B	80	I	INDUST HYGENE SYS	114982.10		11498.20
17.0 MARINE RAILWAY MACHINE HOUSE							
	SF	31	A		11000.60		183.33
21.0 STORAGE SHED							
	B	78	I	RENOVATE	54406.20		2720.30
24.0 STORAGE SHED							
	B	42	A		8000.50		160.00
25.0 STORAGE SHED							
	B	42	A		24000.50		480.00

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
26.0 STORAGE SHED							
	B	43	A		37000.40		925.00
	B	48	I	PARTITION	332.70		4.74
	B	76	I	RNVATE WLLS DRS	20747.20		1023.70
27.0 CLASSROOM							
	B	73	I	MODERNIZE	14686.15		979.06
31.0 COMPTROLLER & ADP BUILDING							
	B	39	A		124000.75		1653.33
	B	45	I	PARTITION	325.69		4.71
	B	47	I	ALTERATION	2321.67		34.64
	B	63	I	FLOOR INSTALL	2016.51		39.53
	B	73	I	COMPUTER INSTALL	6712.41		163.70
	B	79	I	SECURITY ENCLOSURE	14714.35		419.37
	B	80	I	EMERG LIGHTING	5996.05		1199.20
32.0 PAINTED PRODUCTS							
	B	68	A		57386.30		1912.86
	B	69	I	LIGHTING & SPRNKLR	77043.29		2656.65
	B	71	I	UNKWN IMPRVMNT	40456.28		1444.86
	B	72	I	UNKWN IMPRVMNT	10240.26		393.84
34.0 SAND BLAST FACILITY							
	B	80	I	DUST COLLECT SYS	3648.10		364.80
40.0 ORDNANCE SHOP							
	B	79	I	RNVATE HEAT ELEC	29500.20		1468.53
	B	79	I	VENT	25282.20		1258.55

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
40.1 ELECTRONICS SHOP							
	B	72	A		221951.30		7398.36
	B	74	I	FIRE ALRM & DETECT	6595.28		235.54
40.2 ELECTRICAL SHOP							
	B	73	A		305382.30		10179.40
	B	74	I	ADDITIONS	19541.29		673.83
40.3 ELECTRICAL STORAGE							
	B	77	A		61239.15		4082.60
	B	80	I	INSTALL 440V ELEC	29500.10		2950.00
43.0 STORAGE SHED							
	B	42	A		16000.50		320.00
51.0 STORAGE SHED							
	SF	30	A		5000.60		83.33
	B	78	I	RENOVATE	54406.20		2720.30
53.0 INCINERATOR							
					17000.50		340.00
54.0 GATE HOUSE							
	B	41	A		2000.50		40.00
56.0 STORAGE SHED							
	B	65	A	REBUILT	12445.40		311.12

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
58.0 MOLD LOFT							
	B	39	A		125200.60		2086.67
	B	65	I	IMPROVE ELECTRICAL	9033.34		265.68
	B	73	I	HEAT, LIGHT, ELEC	64843.26		2480.11
	B	74	I	ALTERATION	5634.35		160.97
	B	74	I	ALTERATION	7098.25		283.92
	B	75	I	TOILET & SHWRS	2134.24		88.92
65.0 SALVAGE OFFICE							
	B	44	A		4010.40		100.25
	B	39	A		30000.60		500.00
	B	40	I	VENT	2000.59		34.00
	B	45	I	EXHAUST SYSTEM	442.54		8.19
	B	48	I	PLATFORM	587.51		11.50
	B	49	I	VENTS	700.50		14.00
67.0 DRYDOCK 1							
	SF	42	A		587000.50		11740.00
	SF	49	I	POWER RECEPTACLE	700.43		16.28
	SF	65	I	UNITIZED STAGING	20383.27		754.93
	SF	72	I	IMPRVE ELECTRICAL	75632.25		3025.28
	SF	73	I	IMPRVE ELECTRICAL	2567.25		102.68
68.0 DRYDOCK 1 HEADHOUSE							
	B	42	A		102400.60		1706.67
	B	48	I	SCREENS	285.54		5.28
	B	65	I	ADD 2ND FLOOR	74542.37		2014.65

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
68.0 DRYDOCK 1 HEADHOUSE (CONTINUED)							
	B	71	I	RELOCATE & REHAB	12611.31		406.81
	B	74	I	MODIFICATION	11358.28		405.64
	B	75	I	ALTERATIONS	23547.27		872.11
	B	78	I	PARTITIONS	30781.30		1026.03
	B	80	I	EMERG LIGHTING	2141.05		428.20
71.0 CENTRAL TOOL ROOM							
	B	68	A		39878.30		1329.27
	B	80	I	EMERG LIGHTING	1182.05		236.40
75.0 DRYDOCK 2 HEADHOUSE							
	B	43	A		64000.60		1066.67
	B	44	I	UNKWN IMPRVMNT	2000.59		33.90
	B	45	I	UNKWN IMPRVMNT	711.58		12.26
	B	49	I	PLATFORM	95.54		1.76
	B	65	I	ALTERATION	3688.38		97.05
	B	74	I	ALTERATION	10912.29		376.28
77.0 CENTRAL LOCKER ROOM							
	B	80	I	EMERG LIGHTING	1041.05		208.20
78.0 FABRICATING SHOP							
	B	43	A		500000.50		10000.00
	B	44	I	VENTS	1204.49		24.57
	B	44	I	ALTERATION	1164.49		23.76
	B	45	I	TILE	130.48		2.71
	B	45	I	VENT	600.48		12.50

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
78.0 FABRICATING SHOP (CONTINUED)							
	B	45	I	JIB CRANE	542.48		11.29
	B	46	I	UNKWN IMPRVMNT	450.47		9.57
	B	46	I	FAN & HOOD	804.47		17.11
	B	46	I	DOOR	414.47		8.81
	B	47	I	ALTERATION	40000.46		869.57
	B	48	I	ENCLOSURE	440.45		9.78
	B	48	I	LADDER	121.45		2.69
	B	48	I	LADDERS	195.45		4.33
	B	48	I	UNKWN IMPRVMNT	93.45		2.07
	B	49	I	ALTERATION	22000.44		500.00
	B	49	I	ALTERATION	648.44		14.73
	B	50	I	SHINGLES	2500.43		58.14
	B	50	I	FIRE PROTECT SYS	9100.43		211.63
	B	63	I	RPLC WOOD POST	543.30		18.10
	B	64	I	ALTERATION	20129.29		694.10
	B	65	I	ALTERATION	29952.29		1069.71
	B	65	I	ALTERATION	6264.28		223.71
	B	70	I	PHASE I RENOVTION	449027.50		8980.54
	B	71	I	PHASE II RENOVTION	419911.49		8569.61
	B	72	I	RENOVATE	627926.48		13081.79
	B	73	I	VENT SYSTEM	14586.20		729.30
	B	75	I	IMPROVEMENT	12234.45		271.87
	B	76	I	MODIFICATION	10100.44		229.54
	B	79	A	QUONSET HUT	18249.20		908.45

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
78.0 FABRICATING SHOP (CONTINUED)							
	B	79	I	HEAT SYSTEM	61514.20		3075.70
	B	80	I	EMERG LIGHTING	7271.05		1454.20
79.0 FIRE & AMBULANCE HOUSE							
	B	76	I	REHAB	151026.15		10068.40
	B	80	I	EMERG LIGHTING	1294.05		258.80
80.0 STORAGE SHED							
	B	43	A		35000.50		700.00
	B	50	I	IMPROVE SHINGLES	1750.43		40.70
	B	75	I	RELOCTE FLAMB STOR	22432.18		1246.23
81.0 FLAMABLE STORAGE							
	B	43	A		35000.50		700.00
	B	45	I	UNKWN IMPRVMNT	50.48		1.04
	B	50	I	IMPROVE SHINGLES	1750.43		40.70
	B	75	I	RELOCTE FLAMB STOR	22432.18		1246.22
85.0 STORAGE SHED							
	B	42	A	CONSTRCT SLABS	3250.42		77.38
	B	43	A		150450.75		2006.00
	B	46	I	ALTERATION	1450.72		20.14
86.0 STORAGE SHED							
	B	42	I	CONSTRCT SLABS	3250.42		77.38
	B	43	A		150450.75		2006.00
	B	44	I	PARTITIONS	906.73		12.11

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
86.0 STORAGE SHED (CONTINUED)							
	B	45	I	UNKWN IMPRVMNT	93.73		1.27
	B	48	I	DOOR GUARDS	221.70		3.16
	B	50	I	UNKWN IMPRVMNT	70000.43		1627.90
	B	50	I	UNKWN IMPRVMNT	375.68		5.51
87.0 SCALE HOUSE							
	B	43	A		1000.50		20.00
90.0 SPRAY PAINT BUILDING							
	B	80	I	INDUST HYGENE SYS	574913.10		57491.30
91.0 POWER SUB-STATION							
	SF	61	A	CONSTRUCT	27857.25		1114.28
92.0 POWER SUB-STATION							
	SF	61	A	CONSTRUCT	27857.25		1114.28
	SF	76	A	ALTER	33232.10		3323.20
93.0 POWER SUB-STATION							
	SF	61	A	CONSTRUCT	27857.25		1114.28
94.0 POWER SUB-STATION							
	SF	61	A	CONSTRUCT	27857.25		1114.28
96.0 POWER SUB-STATION							
	SF	61	A	CONSTRUCT	27857.25		1114.28
98.0 POWER SUB-STATION							
	SF	68	I	MODIFY	60613.25		2424.52

COLUMN NO. 1. 2. 3. 4.	5.	6.	7
99.0 POWER SUB-STATION			
SF 61 A CONSTRUCT	27857.25	1114.28	
100.0 POWER SUB-STATION			
SF 61 A CONSTRUCT	27857.25	1114.28	
101.0 POWER SUB-STATION			
SF 65 A INSTALLATION	11642.25	465.68	
104.0 POWER SUB-STATION			
SF 68 A CONSTRUCT	56536.25	2261.44	
137.0 STORAGE SHED			
B 42 A	8000.60	133.33	
138.0 STORAGE SHED			
B 76 I REHAB	16587.10	1658.70	
200.0 COMPRESSED GAS BOTTLE STORAGE BUILDING			
B 81 A	27311.15	1820.76	
201.0 EAST BULKHEAD			
SF 66 A CONSTRUCTION	900983.40	22524.57	
B 79 A	6254.10	625.40	
202.0 SOUTH BULKHEAD			
SF 75 I DESIGN & RECONSTR	407654.40	10191.35	
SF 79 I REPAIR	639524.40	15953.93	

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
203.0 NORTHEAST BULKHEAD							
	SF	79	I	REPAIR	639524.40		15953.94
205.0 PIERS							
	SF	42	A	CONSTRUCTION	178400.50		3568.00
	SF	79	I	MISC CONCRETE RPR	18507.10		1850.70
	SF	79	I	MODIFY DOG HOUSE	43541.10		4354.10
205.1 PIER 1							
	SF	67	I	CONCRETE WORK	36738.25		1469.52
	SF	70	I	RESURFACE	40900.22		1859.09
205.2 PIER 2							
	SF	70	I	UPDATE UTILITIES	58147.22		2643.05
205.3 PIER 3							
	SF	70	I	CONCRETE WORK	28111.25		1124.44
	SF	75	I	CONCRETE REPAIRS	163715.17		9630.29
205.4 PIER 4							
	SF	79	I	ICE DAMAGE REPAIRS	21446.25		854.86
205.5 PIER 5							
	SF	79	I	ICE DAMAGE REPAIRS	21446.25		854.86
206.0 PILE DOLPHINS							
	SF	77	I	RPLC & REPAIR	33103.10		3310.30
207.0 SHORE TIES							
	SF	80	I	IMPROVE	26460.05		5292.00

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
208.0 YARD AIR SYSTEM							
	SF	46	A	INSTALL IN 8	156.56		2.95
	SF	65	I	RPLC ON WATERFRONT	25458.25		1018.32
	SF	72	I	INSTALL TO 78	5331.25		213.24
209.0 GANGWAYS & PLATFORMS							
	SF	65	A		21121.20		1056.05
	SF	67	A		11942.20		597.10
210.0 YARD CRANES							
	SF	77	I	IMPRVE RAIL JOINTS	32168.05		6433.60
210.1 TOWER CRANE 1							
	SF	78	I	LIGHTING SYSTEM	15255.05		3047.00
210.3 TOWER CRANE 3							
	SF	66	A		33166.25		14106.87
210.4 TOWER CRANE 4							
	SF	65	A		308184.25		13103.01
210.5 CLYDE GANTRY CRANE							
	SF	73	A		583591.25		23546.09
215.0 USCGC MESSENGER (TUG)							
	SF	46	A		300000.40		7500.00
216.0 SHIPWAY 1							
	SF	42	A		349750.75		4663.33
	SF	44	I	RAILINGS	323.73		4.46

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
216.0 SHIPWAY 1 (CONTINUED)							
	SF	45	I	RAILINGS	203.40		5.09
	SF	48	I	RAILING	561.69		8.13
	SF	65	I	RESURF & SCAFFOLD	23155.52		445.29
	SF	75	I	REPAIRS & ADD.	17306.42		412.05
	SF	76	I	REPAIRS	924.41		22.53
217.0 SHIPWAY 2							
	SF	42	A		349750.75		4663.33
	SF	44	I	RAILINGS	325.73		4.46
	SF	45	I	RAILINGS	203.40		5.09
	SF	65	I	RESURF & SCAFFOLD	23155.52		445.29
	SF	72	I	REPAIR & IMPROVE	33462.45		743.60
	SF	75	I	REPAIRS & ADD.	17306.42		412.05
217.0 SHIPWAY 2							
	SF	76	I	REPAIRS	924.41		22.54
218.0 WASTE OIL PAD							
	SF	79	A	CONSTRUCT	11550.10		1155.00
	SF	80	A		11550.05		2310.00
219.0 SLUDGE BARGE							
	SF	44	A		7000.40		175.00
221.0 YARD SEWAGE SYSTEM							
	SF	38	A	SEPTIC TANKS	1670.50		33.40
	SF	40	A		12745.50		254.90

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
221.0 YARD SEWAGE SYSTEM (CONTINUED)							
	SF	40	A	MANHOLES	6600.50		132.00
	SF	40	A	MANHOLES	7350.50		147.00
	SF	40	A	STORM SEWERS	16063.50		321.26
	SF	42	A	SEPTIC TANKS	23520.50		470.40
	SF	44	A		4051.50		81.02
	SF	44	A	STORM SEWERS	8722.50		174.44
	SF	71	I	SEWAGE DISPOSAL SYS	472896.40		11818.58
	SF	72	A	CONSTRUCT LINE 4	1400.22		63.63
	SF	72	A	CONSTRCT LINE 233	10272.22		466.90
	SF	72	I	UNKWN IMPRVMNT	17800.38		468.42
	SF	72	I	DOCKSIDE SEWAGE SYS	10890.22		495.00
	SF	73	I	CONNECT LINES	6676.25		267.04
	SF	74	A	WSTE CLEANSING TNK	5858.25		234.32
	SF	76	I	DRY DOCKS SEWERS	35315.34		1038.67
223.0 CULVERT							
	SF	43	A		27836.75		371.15
224.0 STEAM SYSTEM							
	SF	70	I	RENEW LINES 5,8,11	12865.15		857.67
	SF	74	I	DISTRIBUTION SYS	35907.25		1436.28
	SF	74	A	PHASE I CONSTRCT	457250.25		18290.00
	SF	76	I	TIME CONTROLS	23584.23		1025.39
	SF	77	A	PHASE II CONSTRCT	842470.20		42123.50

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
224.0 STEAM SYSTEM (CONTINUED)							
	SF	77	I	RPLC PIPE	299206.20		14960.30
	SF	77	I	IMPRVE FLOW RATE	88429.10		8842.90
225.0 FRESH WATER SYSTEM							
	SF	67	A		34630.25		1385.20
	SF	68	I	IMPRVE MAINS	31046.25		1241.84
	SF	69	A	INSTALL MAINS 32	15830.25		633.20
	SF	72	I	GENRL IMPRVMNT	94744.25		3789.76
	SF	73	I	CONNECT LINES	6676.25		267.04
	SF	74	I	GENRL IMPRVMNT	9135.25		365.40
	SF	79	I	CONNECT TO COUNTY	20820.25		832.80
228.0 FIRE ALARM SYSTEM							
	SF	44	A		1350.40		33.75
	SF	48	A		392.40		9.80
	SF	68	I	REHAB	5964.25		238.56
	SF	72	I	REHAB	45289.21		2156.61
	SF	74	A	ADDITIONS	9265.19		487.63
229.0 BRIDGE							
	SF	42	A		16500.50		330.00
	SF	75	I	REPAIR	42389.17		2493.47
230.0 ROADWAYS							
	SF	65	I	PAVING	24380.25		975.20
	SF	70	I	REPAIR & PAVING	26365.25		1054.24
	SF	71	I	RESURF ROSS AVE	32833.25		1313.32

COLUMN NO.	1.	2.	3.	4.	5.	6.	7.
230.0 ROADWAYS (CONTINUED)							
	SF	71	I	PAVING	14260.25		570.40
	SF	76	I	RECONSTRUCT	56155.25		2246.20
	SF	80	I	PAVE AROUND 78 & 68	46559.10		4655.90
231.0 SIDEWALKS							
	SF	46	A	STEPS & RAILS	350.40		8.75
	SF	72	A	NEW WALK PRKNG LOT	7990.20		399.50
	SF	77	A	NEW WALLK 68	34388.10		3438.80
	SF	79	I	PAVE 5	2718.05		543.60
	SF	79	A	PAVE 9 & 34	56344.20		2817.20
232.0 FENCES							
	SF	72	A	N. PARKING LOT	4566.20		228.30
	SF	72	I	SALVAGE LOT	4273.20		213.15
233.0 PARKING LOST							
	SF	76	I	PAVE LOT #22	9316.20		465.80
	SF	78	I	PAVE LOT	27793.05		5558.60
234.0 YARD ELECTRICAL SYSTEM							
	SF	65	I	IMPRVE YARD LIGHTNG	52359.25		2094.36
	SF	67	I	REPLACE ELEC LINES	31564.15		2104.27
	SF	70	I	RENEW ELEC CABLE	17686.15		1179.06
	SF	71	I	ELECTRICAL CABLE	3000.15		200.00
	SF	72	I	ELEC. SWITCH GEAR	34090.25		1363.60
	SF	78	A	LIGHTING PARKING LOT	41309.20		2065.45

APPENDIX C

WRITE-OFF EXPENSE FROM $1,000 CONTRIBUTION THRESHOLD

ASSET IDENTIFICATION		FY-82 UNDEPRECIATED ASSET VALUE
1.0	ADMIN BLDG	890.80
4.0	WOOD SHOP	324.02
5.0	BOAT SHOP	103.68
8.0	COMBINED SHOP	1781.05
26.0	STORAGE SHED	170.64
31.0	COMPTROLLER ¢ ADP	150.72
66.0	MOBILE EQUIP MAINT	824.33
67.0	DRY DOCK 1	162.80
68.0	DD 1 HEAD HOUSE	105.60
75.0	DD 2 HEAD HOUSE	294.42
78.0	FABRICATING SHOP	1250.59
81.0	FLAMABLE STORAGE	11.44
86.0	STORAGE SHED	792.19
208.0	YARD AIR SYSTEM	59.00
216.0	SHIPWAY 1	1244.47
217.0	SHIPWAY 2	960.27
228.0	FIRE ALARM SYSTEM	58.80
231.0	SIDEWALKS	35.00
	TOTAL	$9219.78

APPENDIX D

ASSET ACQUISITION AND DEPRECIATION LISTING

Asset	Identification	Total Acquisition Costs	Total Annual Depreciation
1.0	ADMIN BLDG	202523	3091.32
4.0	WOOD SHOP	322842	9245.07
5.0	BOAT SHOP	599418	57515.05
5.1	BOAT SHOP ANNEX	90617	2847.27
6.0	DEGREASING BLDG	57990	3348.89
7.0	YARD TOILET	16500	330.00
8.0	COMBINED SHOP	484815	13098.09
10.0	SHIPWAY HEAD HOUSE	31370	418.27
11.0	MACHINE SHOP	1223	122.30
13.0	SHIPWAY XFMMR HOUSE	3000	50.00
15.0	POWER HOUSE	324813	19987.55
17.0	MARINE RAILWAY MACH HSE	11000	183.33
21.0	STORAGE SHEDS	54406	2720.30
24.0	STORAGE SHED	8000	160.00
25.0	STORAGE SHED	24000	480.00
26.0	STORAGE SHED	57747	1948.70
27.0	CLASSROOM	14686	979.06
31.0	COMPTROLLER & ADP	155759	3509.77
32.0	PAINTED PRODUCTS	185125	6408.21
34.0	SAND BLAST FACIL	3648	364.80
40.0	ELEC & ELECTRONICS	54782	2727.08

Asset	Identification	Total Acquisition Costs	Total Annual Depreciation
40.1	ELECTRONICS SHOP	228546	7633.90
40.2	ELECTRICAL SHOP	324923	10853.23
40.3	ELECTRICAL STORAGE	90739	7032.60
43.0	STORAGE SHED	16000	320.00
51.0	STORAGE SHED	59406	2803.63
53.0	INCINERATOR	17000	340.00
54.0	GATE HOUSE	2000	40.00
56.0	STORAGE SHED	12445	311.12
58.0	MOLD LOFT	213942	5366.27
65.0	SALVAGE OFFICE	4010	100.25
66.0	MOBILE EQUIP MAINT	35186	627.71
67.0	DRY DOCK 1	685582	15622.89
68.0	DD 1 HEAD HOUSE	257380	6860.11
71.0	CENTRAL TOOL ROOM	41060	1565.67
75.0	DD 2 HEAD HOUSE	80600	1573.90
77.0	CENTRAL LOCKER ROOM	1041	208.20
78.0	FABRICATING SHOP	2253131	50976.18
79.0	FIRE & AMBULANCE HSE	152320	10327.20
80.0	STORAGE SHED	59182	1986.93
81.0	FLAMABLE STORAGE	59182	1986.92
85.0	STORAGE SHED	155150	2103.52
86.0	STORAGE SHED	223700	3711.28
87.0	SCALE HOUSE	1000	20.00
90.0	SPRAY PAINT BLDG	574913	57491.30
91.0	POWER SUB-STATION	27857	1114.28

Asset Identification		Total Acquisition Costs	Total Annual Depreciation
92.0	POWER SUB-STATION	61089	4437.48
93.0	POWER SUB-STATION	27857	1114.28
94.0	POWER SUB-STATION	27857	1114.28
96.0	POWER SUB-STATION	27857	1114.28
98.0	POWER SUB-STATION	60613	2424.52
99.0	POWER SUB-STATION	27857	1114.28
100.0	POWER SUB-STATION	27857	1114.28
101.0	POWER SUB-STATION	11642	465.68
104.0	POWER SUB-STATION	56536	2261.44
137.0	STORAGE SHED	8000	133.33
138.0	STORAGE SHED	16587	1658.70
200.0	COMPRSD GAS BOTL STOR	27311	1820.76
201.0	EAST BULKHEAD	907237	23149.97
202.0	SOUTH BULKHEAD	1047178	26145.28
203.0	NORTHEAST BULKHEAD	639524	15953.94
205.0	PIERS	240448	9772.80
205.1	PIER 1	77638	3328.61
205.2	PIER 2	58147	2643.05
205.3	PIER 3	191826	10754.73
205.4	PIER 4	21446	854.86
205.5	PIER 5	21446	854.86
206.0	PILE DOLPHINS	33103	3310.30
207.0	SHORE TIES	26460	5292.00
208.0	YARD AIR SYSTEM	30789	1231.56
209.0	GANGWAYS & PLATFORMS	33063	16353.15

Asset	Identification	Total Acquisition Costs	Total Annual Depreciation
210.0	YARD CRANES	32168	6433.60
210.1	TOWER CRANE 1	15255	3047.00
210.3	TOWER CRANE 3	336166	14106.87
210.4	TOWER CRANE 4	308184	13103.01
210.5	CLYDE GANTRY CRANE	583591	23536.09
215.0	USCGC MESSENGER (TUG)	300000	7500.00
216.0	SHIPWAY 1	390211	5520.67
217.0	SHIPWAY 2	423673	6264.27
218.0	WASTE OIL PAD	23100	3465.00
219.0	SLUDGE BARGE	7000	175.00
221.0	YARD SEWAGE SYSTEM	641828	16466.98
223.0	CULVERT	27836	371.15
224.0	STEAM SYSTEM	1759711	87536.00
225.0	FRESH WATER SYSTEM	212881	8515.23
228.0	FIRE ALARM SYSTEM	61868	2916.55
229.0	BRIDGE	58889	2823.47
230.0	ROADWAYS	200552	10815.25
231.0	SIDEWALKS	101440	7199.10
232.0	FENCES	8829	441.45
233.0	PARKING LOTS	37109	6024.40
234.0	YEAR ELECTRICAL SYSTEM	180008	9006.74
	TOTAL	17700226	679496.00

APPENDIX E

ASSETS' COST CENTER ASSIGNMENTS

ASSET IDENTIFICATION		COST CENTER	
1.0	ADMIN BLDG	82602	Indust. Mgrs. Staff
		82605	Safety Staff
		82606	Plan, Mgt. Svcs. Staff
		82607	Ind. Eng. Div.
		82609	Mgt. Svcs. Div.
		82631	Civilian Pers. Ofc.
		82677	Eng. Div. Ind. Dept.
4.0	WOOD SHOP	82342	Woodworking Shop
5.0	BOAT SHOP	82320	Mechanical Group
5.1	BOAT SHOP ANNEX	82320	Mechanical Group
6.0	DEGREASING BLDG	82320	Mechanical Group
7.0	YARD TOILET	82671	Indust. Dept. Staff
8.0	COMBINED SHOP	82321	Pipefitting Shop
		82343	Matls Handling Shop
10.0	SHIPWAY HEAD HOUSE	82563	Piers, Blkhds, Shipways
11.0	MACHINE SHOP	82322	Inside Mach. Shop
13.0	SHIPWAY XFRMR HOUSE	82563	Piers, Bldkds, Shipways
15.0	POWER HOUSE	82545	Powerhouse Branch
17.0	MARINE RAILWAY MACH HSE	82563	Piers, Blkhds, Shipways
21.0	STORAGE SHEDS	82653	Stor. & Distrib. Branch
24.0	STORAGE SHED	82653	Stor. & Distrib. Branch
25.0	STORAGE SHED	82653	Stor. & Distrib. Branch

ASSET IDENTIFICATION		COST CENTER	
26.0	STORAGE SHED	82653	Stor. & Distrib. Branch
27.0	CLASSROOM	82631	Civilian Pers Office
31.0	COMPTROLLER & ADP	82608	Mngmnt Info Sys Div.
		82641	Fiscal Dept.
32.0	PAINTED PRODUCTS	82342	Paint Shop
34.0	SAND BLAST FACIL	82342	Paint Shop
40.0	ORDNANCE SHOP	82333	Ordnance Shop
40.1	ELECTRONICS SHOP	82332	Electronics Shop
40.2	ELECTRICAL SHOP	82331	Electrical Shop
40.3	ELECTRICAL STORAGE	82331	Electrical Shop
43.0	STORAGE SHED	82653	Stor. & Distrib. Branch
51.0	STORAGE SHED	82653	Stor. & Distrib. Branch
53.0	INCINERATOR	82445	Grnds & Janitor Svc Shop
54.0	GATE HOUSE	82602	Indust. Manger Staff
56.0	STORAGE SHED	82653	Stor. & Distrib. Branch
58.0	MOLD LOFT	82311	Ship Fitting Group
65.0	SALVAGE OFFICE	82653	Stor. & Distrib. Branch
66.0	MOBILE EQUIP MAINT	82544	Mob. & Wt. Lift. Equip
67.0	DRY DOCK 1	82344	Drydock Shop
68.0	DD 1 HEAD HOUSE	82344	Drydock Shop
71.0	CENTRAL TOOL ROOM	82346	Central Tool Room
75.0	DD 2 HEAD HOUSE	82344	Drydock Shop
77.0	CENTRAL LOCKER ROOM	82310	Structural Group
78.0	FABRICATING SHOP	82310	Structural Group
79.0	FIRE & AMBULANCE HSE	82605	Safety Staff

ASSET IDENTIFICATION		COST CENTER	
80.0	STORAGE SHED	82653	Stor. & Distrib. Branch
81.0	FLAMABLE STORAGE	82653	Stor. & Distrib. Branch
85.0	STORAGE SHED	82653	Stor. & Distrib. Branch
86.0	STORAGE SHED	82653	Stor. & Distrib. Branch
87.0	SCALE HOUSE	82653	Stor. & Distrib. Branch
90.0	SPRAY PAINT BLDG	82342	Paint Shop
91.0	POWER SUB-STATION	82542	Utility Lines
92.0	POWER SUB-STATION	82542	Utility Lines
93.0	POWER SUB-STATION	82542	Utility Lines
94.0	POWER SUB-STATION	82542	Utility Lines
96.0	POWER SUB-STATION	82542	Utility Lines
98.0	POWER SUB-STATION	82542	Utility Lines
99.0	POWER SUB-STATION	82542	Utility Lines
100.0	POWER SUB-STATION	82542	Utility Lines
101.0	POWER SUB-STATION	82542	Utility Lines
104.0	POWER SUB-STATION	82542	Utility Lines
137.0	STORAGE SHED	82653	Stor. & Distrib. Branch
138.0	STORAGE SHED	82653	Stor. & Distrib. Branch
200.0	COMPRSD GAS BOTL STOR	82653	Stor. & Distrib. Branch
201.0	EAST BULKHEAD	82563	Piers, Blkhds, Shipways
202.0	SOUTH BULKHEAD	82563	Piers, Blkhds, Shipways
203.0	NORTHEAST BULKHEAD	82563	Piers, Blkhds, Shipways
205.0	PIERS	82563	Piers, Blkhds, Shipways
205.1	PIER 1	82563	Piers, Blkhds, Shipways
205.2	PIER 2	82563	Piers, Blkhds, Shipways

ASSET IDENTIFICATION		COST CENTER	
205.3	PIER 3	82563	Piers, Blkhds, Shipways
205.4	PIER 4	82563	Piers, Blkhds, Shipways
205.5	PIER 5	82563	Piers, Blkhds, Shipways
206.0	PILE DOLPHINS	82563	Piers, Blkhds, Shipways
207.0	SHORE TIES	82563	Piers, Blkhds, Shipways
208.0	YARD AIR SYSTEM	82310	Structural Group
209.0	GANGWAYS & PLATFORMS	82343	Matls Handling Shop
210.0	YARD CRANES	82544	Mob. & Wt. Lift. Equip
210.1	TOWER CRANE 1	82544	Mob. & Wt. Lift. Equip
210.3	TOWER CRANE 3	82544	Mob. & Wt. Lift. Equip
210.4	TOWER CRANE 4	82544	Mob. & Wt. Lift. Equip
210.5	CLYDE GANTRY CRANE	82544	Mob. & Wt. Lift. Equip
215.0	USCGC MESSENGER (TUG)	82397	Tug & Sea Mule
216.0	SHIPWAY 1	82563	Piers, Blkhds, Shipways
217.0	SHIPWAY 2	82563	Piers, Blkhds, Shipways
218.0	WASTE OIL PAD	82671	Indust. Dept. Staff
219.0	SLUDGE BARGE	82671	Indust. Dept. Staff
221.0	YARD SEWAGE SYSTEM	82543	Storm & Sanitary Sewers
223.0	CULVERT	82566	Streets & Roads
224.0	STEAM SYSTEM	82542	Utility Lines
225.0	FRESH WATER SYSTEM	82542	Utility Lines
228.0	FIRE ALARM SYSTEM	82605	Safety Staff
229.0	BRIDGE	82566	Streets & Roads
230.0	ROADWAYS	82566	Streets & Roads
231.0	SIDEWALKS	82566	Streets & Roads

ASSET IDENTIFICATION		COST CENTER	
232.0	FENCES	82445	Grnds & Janitor Svc Shop
233.0	PARKING LOTS	82566	Streets & Roads
234.0	YARD ELECTRICAL SYSTEM	82542	Utility Lines

APPENDIX F

COST CENTER'S INDUSTRIAL ALLOCATION BASES

Cost Center		Allocation to Industrial O/H	Allocation Base
82311	SHIPFITTING SHOP	100%	
82320	MECHANICAL GROUP	100%	
82321	PIPEFITTING SHOP	100%	
82322	INSIDE MACHINE SHOP	100%	
82331	ELECTRICAL SHOP	100%	
82332	ELECTRONICS SHOP	100%	
82333	ORDNANCE SHOP	100%	
82341	WOODWORKING SHOP	100%	
82342	PAINT SHOP	100%	
82343	MATERIALS HANDLING SHOP	100%	
82344	DRYDOCK SHOP	100%	
82346	CENTRAL TOOL ROOM	100%	
82397	TUG & SEA MULE	100%	
82445	GROUNDS & JANITORIAL SVC.		
	PRESENT METHOD	49%	UNKNOWN
	RECOMMENDED METHOD	89%	SQFT OF BLDGS COVERED BY JANITORAL CONTRACT
82542	UTILITY LINES		
	PRESENT METHOD	60%	UNKNOWN
	RECOMMENDED METHOD	73%	SQUARE-FOOTAGE & METERING

Cost Center		Allocation to Industrial O/H	Allocation Base
82543	STORM & SANITARY SEWERS		
	PRESENT METHOD	51%	POPULATION X PER CAPITA WATER FLOW X AVERAGE WAST FLOW X % INDUSTRIAL + 13%
	RECOMMENDED METHOD	74%	YARD POPULATION INCLUDING VISITING SHIPS
82544	MOBILE & WEIGHT LIFT. EQUIP.		
	PRESENT METHOD	71%	UNKNOWN
	RECOMMENDED METHOD	89%	% OF VEHICLES & EQUIPMENT THAT ARE INDSTL
82545	POWERHOUSE BRANCH		
	PRESENT METHOD	70%	ELECTRICAL USAGE WITHIN A ZONE X % ZONE WAS INDUSTRIAL
	RECOMMENDED METHOD	73%	SQUARE-FOOTAGE
82563	PIERS, BLKHDS & SHIPWAYS		
	PRESENT METHOD	41%	UNKNOWN
	RECOMMENDED METHOD	70%	PIER & BULKHEAD FOOTAGE
82566	STREETS & ROADS		
	PRESENT METHOD	22%	UNKNOWN
	RECOMMENDED METHOD	60%	LINEAR FEET OF ROADWAY

Cost Center		Allocation to Industrial O/H	Allocation Base
82602	INDUST MANGR STAFF	100%	
82605	SAFETY STAFF		
	PRESENT METHOD	87%	UNKNOWN
	RECOMMENDED METHOD	84%	YARD POPULATION
82606	PLANNING, MANGMT SVCS STAFF		
	PRESENT METHOD	87%	UNKNOWN
	RECOMMENDED METHOD	71%	STAFF'S BUSINESS VOLUME
82607	INDUSTRIAL ENG. DIV.		
	PRESENT METHOD	87%	UNKNOWN
	RECOMMENDED METHOD	84%	YARD POPULATION
82608	MANGMT INFOR SYSTEMS STAFF		
	PRESENT METHOD	77%	UNKNOWN
	RECOMMENDED METHOD	50%	COMPUTER USAGE (ESTIMATE)
82609	MANGMT SERVICES DIV.		
	PRESENT METHOD	25%	UNKNOWN
	RECOMMENDED METHOD	34%	YARD POPULATION
82631	CIVILIAN PERSONNEL OFFICE		
	PRESENT METHOD	85%	UNKNOWN
	RECOMMENDED METHOD	87%	YARD CIVILIAN POPULATION
82641	FISCAL DEPARTMENT		
	PRESENT METHOD	87%	UNKNOWN
	RECOMMENDED METHOD	58%	% OF FUNDS MANAGED

Cost Center		Allocation to Industrial O/H	Allocation Base
82653	STORAGE & DISTRIB BRANCH		
	PRESENT METHOD	87%	UNKNOWN
	RECOMMENDED METHOD	75%	WAREHOUSE SPACE STUDY
82671	INDUST. DEPT STAFF	100%	
82677	INDUST. DEPT, ENG. DIV.	100%	

APPENDIX G

ONE HUNDRED PERCENT INDUSTRIAL ASSETS IN ALLOCABLE COST CENTERS

Cost Center	100% Industrial Assets
82544 Mobile and Weight Lifting Equipment	
	210.0 Yard Cranes
	210.1 Tower Crane 1
	210.3 Tower Crane 3
	210.4 Tower Crane 4
	210.5 Clyde Gantry Crane
82653 Storage and Distribution Branch	
	200.0 Compressed Gas Bottle Storage
82563 Pier, Bulkheads and Shipways	
	10.0 Shipway Head House
	13.0 Shipway Transformer House
	201.0 East Bulkhead
	203.0 Northeast Bulkhead
	205.1 Pier 1
	205.2 Pier 2
	205.3 Pier 3
	205.4 Pier 4
	205.5 Pier 5
	206.0 Pile Dolphins
	216.0 Shipway 1
	217.0 Shipway 2

APPENDIX H

INDUSTRIAL OVERHEAD ALLOCATED TO COST CENTERS

Cost Center	Present Method	Recommended Method
82310 Structural Group	52,415.94	52,415.94
82311 Shipfitting Group	5,366.26	5,366.26
82320 Mechanical Group	63,711.21	63,711.21
82321 Pipefitting Shop	9,168.66	9,168.66
82322 Inside Machine Shop	122.30	122.30
82331 Electrical Shop	17,885,83	17,885.83
82332 Electronics Shop	7,633.90	7,633.90
82333 Ordnance Shop	2,727.08	2,727.08
82341 Woodworking Shop	9,245.07	9,245.07
82342 Paint Shop	64,264.31	64,264.31
82343 Materials Handling Shop	5,582.58	5,582.58
82344 Drydock Shop	24,240.23	24,240.23
82346 Central Toolroom	1,565.67	1,565.67
82397 Tug and Sea Mule	3,756.67	3,756.00
82445 Grnds and Jntrl Svc Shop	400.57	532.15
82542 Utility Lines	69,817.33	86,395.81
82543 Storm and Sanitry Sewers	8,398.15	12,185.55
82544 Mobile and Wt Ltg Eqpmt	60,706.67	60,828.39
82545 Power House Branch	13,991.28	14,590.91
82563 Piers, Blkheds, Shipways	89,999.66	101,950.59
82566 Streets and Roads	9,124.04	17,183.45

Cost Center	Present Method	Recommended Method
82602 Indust. Mgr. Staff	256.39	256.39
82605 Safety Staff	13,321.80	11,428.50
82606 Plang., Mgt. Svcs. Dept.	134.48	109.74
82607 Indust. Eng. Div.	215.16	205.27
82608 Mgt. Info. Sys. Staff	891.83	579.11
82609 Mgt. Svcs. Div.	255.04	224.43
82631 Civilian Pers. Office	1,121.24	1,147.62
82641 Fiscal Dept.	519.09	346.06
82653 Storage and Distr. Br.	19,607.60	17,154.24
82671 Indust. Dept. Staff	3,970.00	3,970.00
82677 Eng. Div. Ind. Dept.	680.10	680.10
TOTAL	561,095.47	597,453.35

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A full overhead cost model for the U. S. Coast Guard Yard, Curtis Bay, Maryland.